

# Fire and Sound Selector

## Fire and Sound Ratings

### FIRE RATINGS

Fire resistance is the ability of an assembly constructed in a laboratory to contain a fire in a carefully controlled test setting for a specified period of time. ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, is the test standard for determining the fire-resistance rating of partitions, floor-ceiling assemblies, roof-ceiling assemblies, beams and columns. Fire tests may be conducted at any one of several recognized facilities.

Fire-resistance ratings represent the results of tests on assemblies made up of specific materials in a specific configuration. When selecting construction designs to meet certain fire-resistance requirements, caution must be used to ensure that each component of the assembly is the one specified in the test. Further, precaution should be taken that assembly procedures are in accordance with those of the tested assembly. **For copies of specific tests, call 1-800-NATIONAL (628-4662).**

### SOUND RATINGS

Gypsum board assemblies are laboratory tested to establish their sound attenuation characteristics. Airborne sound insulation is reported as the Sound Transmission Class (STC). Impact noise, tested on floor-ceiling systems only, is reported as the Impact Insulation Class (IIC). ASTM E90, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*, is the test standard for airborne sound reduction. The test measures the sound transmission loss at 16 one-third octave frequencies to generate a single-number acoustical rating.

When selecting systems based on laboratory performance ratings, it should be understood that field conditions such as flanking paths or air leaks caused by design or workmanship can reduce acoustical performance. For this reason, Gold Bond Building Products, LLC cannot guarantee the performance ratings of specific assemblies in the field.

To achieve maximum sound isolation from an assembly, follow published construction details completely. Use non-hardening acoustical sealant at penetrations and floor, ceiling and wall intersections to prevent flanking paths for sound.



### GENERAL NOTES REGARDING FIRE-RATED ASSEMBLIES

1. Unless otherwise specified, the face layers of all assemblies, except those with predecorated surfaces or exterior gypsum sheathing, shall have joints taped and fastener heads treated (minimum Level 2 as specified in GA-214, *Levels of Finish for Gypsum Panel Products*). Base layers in multi-layer assemblies shall not be required to have joints or fasteners taped or covered with joint compound.
2. When not specified as a component of a fire-tested wall or partition assembly, mineral fiber, glass fiber, or cellulose fiber insulation of a thickness not exceeding that of the stud depth shall be permitted to be added within the stud cavity.
3. In floor-ceiling or roof-ceiling assemblies, the addition or deletion of mineral wool or glass fiber insulation in the concealed space between the ceiling membrane and the floor or roof structure could possibly reduce the fire-resistance rating. The addition of insulation to any one- or two-hour fire-resistance rated floor-ceiling or roof-ceiling assembly is permitted provided that one additional layer of gypsum board of the same type specified in the design is added to the ceiling.
4. Additional layers of gypsum board are permitted to be added to any assembly.
5. Stud sizes specified in wood- or steel-stud assemblies are minimums.
6. Stud spacings specified in wood- or steel-stud assemblies are maximums.
7. Beam, joist and truss dimensions specified in floor-ceiling or roof-ceiling assemblies are minimums.
8. Beam, joist and truss spacings specified in floor-ceiling or roof-ceiling assemblies are maximums.
9. The distance between parallel rows of studs in wood- or steel-stud assemblies are minimums.
10. Ceilings supported directly from structural members are permitted to be suspended provided the in place stiffness is equivalent to the tested assembly.

**GYPSUM PANEL PRODUCTS FOR USE IN UL CLASSIFIED SYSTEMS**

<b>UL Type Designation</b>	<b>Product Name</b>
<b>FSW</b>	5/16" Gold Bond® XP® Fire-Shield® Radius Gypsum Board 5/8" Gold Bond® Fire-Shield® Gypsum Board, Type X 5/8" Gold Bond® XP® Hi-Abuse® Gypsum Board, Type X 5/8" Gold Bond® XP® Hi-Impact® Gypsum Board, Type X 5/8" Gold Bond® XP® Fire-Shield® Gypsum Board, Type X 1" Gold Bond® Shaftliner XP®, Type X
<b>FSW-C</b>	1/2" Gold Bond® Fire-Shield C™ Gypsum Board, Type C 5/8" Gold Bond® Fire-Shield C™ Gypsum Board, Type C 1/2" Gold Bond® XP® Fire-Shield C™ Gypsum Board, Type C 5/8" Gold Bond® XP® Fire-Shield C™ Gypsum Board, Type C
<b>FSK</b>	5/8" Gold Bond® Kal-Kore® Fire-Shield® Plaster Base, Type X
<b>FSK-C</b>	1/2" Gold Bond® Kal-Kore® Fire-Shield C™ Plaster Base, Type C 5/8" Gold Bond® Kal-Kore® Fire-Shield C™ Plaster Base, Type C
<b>FSW-G</b>	1/2" Gold Bond® Gridstone® Gypsum Ceiling Panels 1/2" Gold Bond® Gridstone® CleanRoom Ceiling Panels
<b>FSW-6</b>	5/8" Gold Bond® eXP® Fire-Shield® Sheathing, Type X 5/8" Gold Bond® eXP® Interior Extreme® Gypsum Panel, Type X 5/8" Gold Bond® eXP® Fire-Shield® Tile Backer, Type X 5/8" Gold Bond® eXP® Interior Extreme® IR Gypsum Panel, Type X 5/8" Gold Bond® eXP® Interior Extreme® AR Gypsum Panel, Type X
<b>FSW-7</b>	1" Gold Bond® eXP® Shaftliner, Type X
<b>eXP-C</b>	1/2" Gold Bond® eXP® Interior Extreme® Fire-Shield C™ Gypsum Panel, Type C 5/8" Gold Bond® eXP® Interior Extreme® Fire-Shield C™ Gypsum Panel, Type C
<b>FSL30</b>	5/8" Gold Bond® High Strength Fire-Shield 30® Gypsum Board
<b>FSLX</b>	5/8" Gold Bond® High Strength Fire-Shield 60® Gypsum Board
<b>SBWB</b>	5/8" Gold Bond® SoundBreak® XP Wall® Board, Type X
<b>SBCB</b>	3/4" Gold Bond® SoundBreak XP Ceiling® Board, Type X
<b>UltraShield</b>	3/4" Gold Bond® Ultra-Shield FS® Gypsum Board 3/4" Gold Bond® XP® Ultra-Shield FS® Gypsum Board
<b>DEXcell Glass Mat Roof Board</b>	1/4", 1/2" or 5/8" DEXcell® Glass Mat Roof Board 1/4", 1/2" or 5/8" DEXcell FA™ Glass Mat Roof Board 1/4", 1/2" or 5/8" DEXcell FA VSH™ Glass Mat Roof Board

The following gypsum board system details are intended solely as technical support incident to the sale and use of products manufactured by Gold Bond Building Products, LLC. They may be used as a reference by architects, engineers, other design professionals, contractors, building code officials, or other competent construction industry trade personnel considering the selection, specification and use of products manufactured by Gold Bond Building Products, LLC in these systems.

Architects, engineers, designers or contractors involved should review these details with the governing code or inspection official at the time of the job submittal to determine if there are any discrepancies with local code or regulatory requirements. In any event, they must NOT be used without a complete evaluation by the owner's design professional to verify the suitability of the system for a given application.

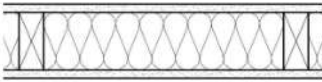
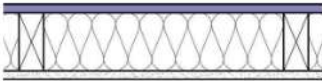
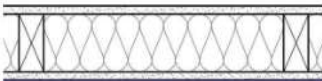
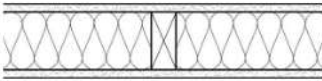

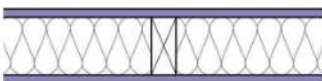

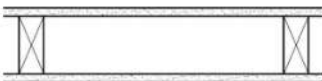
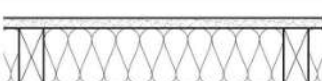
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For fire-safety information relating to certain systems described in this guide, please refer to the information on the Gold Bond Building Products website:

**[goldbondbuilding.com/fire-and-safety-information](http://goldbondbuilding.com/fire-and-safety-information)**



## GYPSUM BOARD PARTITIONS – WOOD FRAMING (LOAD-BEARING)

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
1	Not Rated	N/A	 <p>1/2" (12.7 mm) Gold Bond Gypsum Board applied vertically to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 12" (305 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	36	NGC 2012051
2	Not Rated	N/A	 <p>1/2" (12.7 mm) SoundBreak XP Wall Board applied vertically to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 12" (305 mm) o.c. 1/2" (12.7 mm) Gold Bond Gypsum Board applied vertically to opposite side of studs with 1-1/4" (31.8 mm) Type W screws 12" (305 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	39	NGC 2009047
3	Not Rated	N/A	 <p>1/2" (12.7 mm) Gold Bond Gypsum Board applied vertically to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 12" (305 mm) o.c. 1/2" (12.7 mm) SoundBreak XP Wall Board applied vertically to one side of studs with 1-5/8" (41.3 mm) Type W screws 12" (305 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	43	NGC 2009040
4	Not Rated	N/A	 <p>1/2" (12.7 mm) Gold Bond Gypsum Board applied vertically to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 12" (305 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	42	NGC 2012065
5	Not Rated	N/A	 <p>1/2" (12.7 mm) SoundBreak XP Wall Board applied vertically to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 12" (305 mm) o.c. 1/2" (12.7 mm) Gold Bond Gypsum Board applied vertically to opposite side of studs with 1-1/4" (31.8 mm) Type W screws 12" (305 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	49	NGC 2009027
6	Not Rated	N/A	 <p>1/2" (12.7 mm) SoundBreak XP Wall Board applied vertically to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 12" (305 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	51	NGC 2009029
7	Not Rated	N/A	 <p>1/2" (12.7 mm) Gold Bond Gypsum Board applied vertically to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 12" (305 mm) o.c. 1/2" (12.7 mm) SoundBreak XP Wall Board applied vertically to one side of studs with 1-5/8" (41.3 mm) Type W screws 12" (305 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	51	NGC 2009028
8	30 Min.	W411 WP 3007.1	 <p>5/8" (15.9 mm) High Strength Fire-Shield 30 Gypsum Board applied vertically or horizontally to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c.</p> <p>Sound rating with 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	33	NGC 2014046
9	30 Min.	W411 WP 3007.1	 <p>5/8" (15.9 mm) High Strength Fire-Shield 30 Gypsum Board applied vertically or horizontally to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Resilient channels 24" (610 mm) o.c. applied horizontally to opposite side of studs with 1" (25.4 mm) Type S screws. 5/8" (15.9 mm) High Strength Fire-Shield 30 Gypsum Board applied vertically or horizontally to channels with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	45	NGC 2014044

**GYPSON BOARD PARTITIONS – WOOD FRAMING (LOAD-BEARING) – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
10	45 Min.	U317	1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-5/8" (41.3 mm) long, 5d coated nails 7" (178 mm) o.c. Joints staggered on opposite sides.	34	NGC 2161
			Sound rating with 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	36	NGC 2012051
11	45 Min.	U317	1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-5/8" (41.3 mm) long, 5d coated nails 7" (178 mm) o.c. 1/2" (12.7 mm) SoundBreak XP Wall Board applied vertically to one side with 1-1/4" (31.8 mm) Type S screws 16" (406 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	43	NGC 2009040
12	1 Hr.	U305 WP 3605	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. Joints staggered on opposite sides.	35	NGC 2403
			Sound rating with 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	36	NGC 2008029
13	1 Hr.	U305 WP 3605	5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to opposite side of studs with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	42	NGC 2009020
14	1 Hr.	U305 WP 3605	5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	45	NGC 2009019
15	1 Hr.	U305 WP 3249	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 8" (203 mm) o.c. Resilient channels 24" (610 mm) o.c. applied horizontally to opposite side of studs with 1-1/4" (31.8 mm) Type W screws. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to channel with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	51	NGC 2011071
16	1 Hr.	U305	5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 8" (203 mm) o.c. Resilient channels 24" (610 mm) o.c. applied horizontally to opposite side of studs with 1-1/4" (31.8 mm) Type W screws. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to channel with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	54	NGC 2011066
17	1 Hr.	U305	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 8" (203 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with 1-7/8" (47.6 mm) Type W screws 12" (305 mm) o.c. Resilient channels 24" (610 mm) o.c. applied horizontally to opposite side of studs with 1-1/4" (31.8 mm) Type W screws. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to channel with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	55	NGC 2011070



**GYPSON BOARD PARTITIONS – WOOD FRAMING (LOAD-BEARING) – CONTINUED**

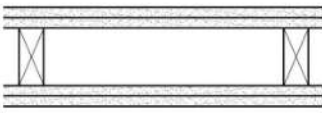
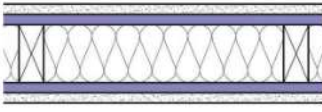
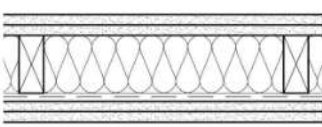
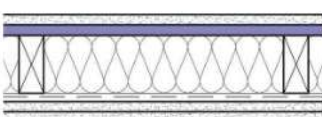
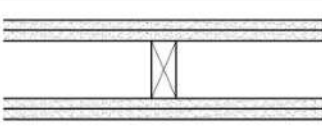
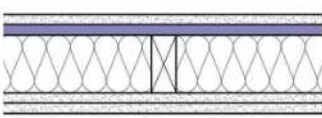
Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
18	1 Hr.	U305	5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 8" (203 mm) o.c. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with 1-7/8" (47.6 mm) Type W screws 12" (305 mm) o.c. Resilient channels 24" (610 mm) o.c. applied horizontally to opposite side of studs with 1-1/4" (31.8 mm) Type W screws. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to channel with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	58	NGC 2011067
19	1 Hr.	WP 3341	Base layer 1/4" (6.4 mm) Gold Bond Gypsum Board applied vertically to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-1/2" (38.1 mm) long, 4d coated nails 12" (305 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side with 1/4" (6.4 mm) beads of laminating compound 2" (50.8 mm) o.c. and with 1-7/8" (47.6 mm) long, 6d coated nails 6" (152 mm) o.c. at top and bottom plates. Joints staggered each layer and side.	45	NGC 2321
20	1 Hr.	U309 WP 3510	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. Joints staggered on opposite sides.	38	NGC 2404
21	1 Hr.	U309 WP 3510	5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to opposite side of studs with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	50	NGC 2009015
22	1 Hr.	U309 WP 3510	5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	53	NGC 2009016
23	1 Hr.	U309	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. Resilient channels 24" (610 mm) o.c. applied horizontally to opposite side of studs with 1-1/4" (31.8 mm) Type W screws. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to channel with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. 3" (76.2 mm) glass fiber insulation between studs fastened with staples 24" (610 mm) o.c. Joints staggered on opposite sides.	50	NRCC TL-93-196
24	1 Hr.	U311	5/8" (15.9 mm) Fire-Shield C Gypsum Board applied horizontally to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 12" (305 mm) o.c. Resilient channels 24" (610 mm) o.c. applied horizontally to opposite side of studs with 1-1/4" (31.8 mm) Type W screws. 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied horizontally to channel with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Vertical joints located between studs and back-blocked with 20" (508 mm) long resilient channel. Horizontal joints not required to be staggered. Vertical joints staggered on opposite sides. 3" (76.2 mm) mineral wool insulation between studs fastened with staples 24" (610 mm) o.c.		

**GYPSON BOARD PARTITIONS – WOOD FRAMING (LOAD-BEARING) – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
25	1 Hr.	U344	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. 15/32" (11.9 mm) wood structural panels applied vertically to opposite side with 1-7/8" (47.6 mm) long, 6d coated nails 6" (152 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs with vertical joints staggered and horizontal joints backed by wood blocking. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally and fastened to studs through wood structural panels with 2-3/8" (60.3 mm) long, 8d coated nails 7" (178 mm) o.c. 3-1/2" (88.9 mm) foil-faced glass fiber insulation friction fit between studs.		
26	1 Hr.	U392 WP 3648	1/2" (12.7 mm) PermaBASE® Cement Board applied vertically or horizontally to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-1/4" (31.8 mm) cement board screws at 8" (203 mm) o.c. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to opposite side with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. 3 1/2" (88.9 mm) mineral fiber insulation friction fit in stud cavity.		
27	1 Hr.	U340	5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically or horizontally to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. staggered 12" (305 mm) on each side of 2x6 (38.1 mm x 140 mm) wood plate with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. Joints staggered on opposite sides.		
28	1 Hr.	U340 WP 5513	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. staggered 8" (203 mm) on each side of 2x6 (38.1 mm x 140 mm) wood plate with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	45	NGC 2375
29	1 Hr.	WP 5513	5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. staggered 8" (203 mm) on each side of 2x6 (38.1 mm x 140 mm) wood plate with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to opposite side of studs with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	53	NGC 2011003
30	1 Hr.	U341	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to each side of double row of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. Joints staggered on opposite sides. Sound rating with studs 16" (406 mm) o.c. and 3-1/2" (88.9 mm) glass fiber insulation in stud cavity in one row only. Sound rating with studs 16" (406 mm) o.c. and 3-1/2" (88.9 mm) glass fiber insulation in stud cavity in each row.	51 54	NGC 2191 NGC 2198
31	1 Hr.	U341	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side of double row of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. Joints staggered on opposite sides. Face layer of SoundBreak XP Wall Board applied vertically to one side with 2" (50.8 mm) Type S screws 16" (406 mm) o.c. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity in one row only.	64	RAL TL07-147



**GYPSON BOARD PARTITIONS – WOOD FRAMING (LOAD-BEARING) – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
32	2 Hr.	U301	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 6" (152 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally with 2-3/8" (60.3 mm) long, 8d coated nails 8" (203 mm) o.c. Vertical joints located over studs. Joints staggered each layer and side.</p>	40	NGC 2363
			<p>Sound rating with 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	41	NGC 2364
33	2 Hr.	U301	 <p>Base layer 5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 8" (203 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side with 2-3/8" (60.3 mm) Type W screws 8" (203 mm) o.c. Vertical joints located over studs. Joints staggered each layer and side. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	45	NGC 2009017
34	2 Hr.	U301 WP 3809	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 8" (203 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied with 2" (50.8 mm) Type W screws 8" (203 mm) o.c. Resilient channels 24" (610 mm) o.c. applied horizontally to opposite side with 1-1/4" (31.8 mm) Type W screws. Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to channels with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Vertical joints located over studs. Joints staggered each layer and side. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	58	NGC 2011069
35	2 Hr.	U301	 <p>Base layer 5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 8" (203 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied with 2" (50.8 mm) Type W screws 8" (203 mm) o.c. Resilient channels 24" (610 mm) o.c. applied horizontally to opposite side with 1-1/4" (31.8 mm) Type W screws. Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to channels with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Vertical joints located over studs. Joints staggered each layer and side. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	61	NGC 2011068
36	2 Hr.	WP 4135	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied horizontally to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied horizontally with 2-3/8" (60.3 mm) long, 8d coated nails 8" (203 mm) o.c. Joints staggered each layer and side.</p>	40	NGC 2363
37	2 Hr.	WP 4135	 <p>Base layer 5/8" (15.9 mm) SoundBreak XP Wall Board applied horizontally to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 24" (610 mm) o.c. Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied horizontally to opposite side with 1-7/8" (47.6 mm) long, 6d coated nails 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied horizontally to each side with 2-3/8" (60.3 mm) long, 8d coated nails 8" (203 mm) o.c. Joints staggered each layer and side. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	54	NGC 2009016

**GYPSON BOARD PARTITIONS – WOOD FRAMING (LOAD-BEARING) – CONTINUED**

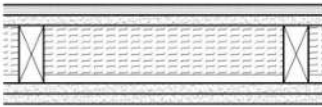
Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
38	2 Hr.	WP 3910	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied horizontally to each side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. staggered 8" (203 mm) on each side of 2x6 (38.1 mm x 140 mm) wood plate with 1-7/8" (47.6 mm) long, 6d coated nails 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied horizontally to each side with 2-3/8" (60.3 mm) long, 8d coated nails 8" (203 mm) o.c. Joints staggered each layer and side.	51	NGC 2377
39	2 Hr.	WP 5520	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied horizontally to each side of double row of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. on separate plates 1" (25.4 mm) apart with 1-7/8" (47.6 mm) long, 6d coated nails 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied horizontally with 2-3/8" (60.3 mm) long, 8d coated nails 8" (203 mm) o.c. Joints staggered each layer and side.  Sound rating with 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	58	NGC 3056

**GYPSON BOARD PARTITIONS – WOOD FRAMING (LOAD-BEARING) – EXTERIOR WALLS**

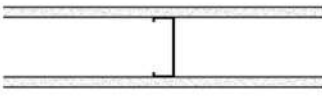
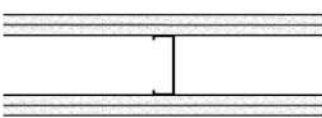
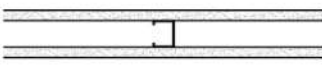
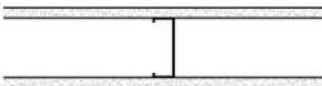
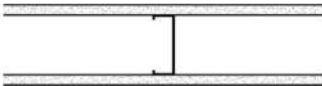
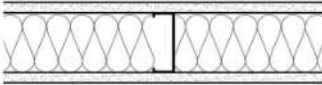
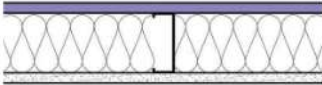
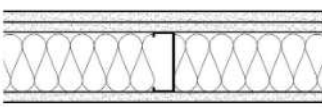
40	1 Hr.	U309 WP 8105	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to interior side of 2x4 (38.1 mm x 88.9 mm) wood studs 24" (610 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. 5/8" (15.9 mm) eXP Fire-Shield Sheathing applied horizontally to exterior side with 1-3/4" (44.5 mm) galvanized roofing nails 4" (102 mm) o.c. at vertical joints and 7" (178 mm) o.c. at intermediate studs and top and bottom plates. Exterior cladding to be fastened through sheathing to studs.		
41	1 Hr.	U356	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to one side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 7" (178 mm) o.c. 7/16" (11.1 mm) wood structural panels applied vertically or horizontally to opposite side with 1-7/8" (47.6 mm) long, 6d coated nails 6" (152 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. Vertical joints staggered and horizontal joints backed by wood blocking. 3-1/2" (88.9 mm) glass fiber or mineral wool insulation friction fit between studs. Vinyl, particle board, wood, aluminum or fiber-cement siding, stucco, EIFS, or brick veneer applied over wood structural panels. Fire rating from interior side only unless brick veneer is used.		
42	1 Hr.	WHI 651-0319	5/8" (15.9 mm) Fire-Shield C Gypsum Board applied horizontally to 2x4 (38.1 mm x 88.9 mm) wood girts 24" (610 mm) o.c. with 1-7/8" (47.6 mm) long, 6d cement-coated nails on 6x6 (140 mm x 140 mm) wood columns 8" (2.44 m) o.c. Metal cladding applied vertically with 1-1/2" (38.1 mm) long hex-head screws to girts. 3" (76.2 mm) mineral fiber insulation nailed to interior of exterior girts.		
43	2 Hr.	U302 WP 8187	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to interior side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails 8" (203 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally with 2-3/8" (60.3 mm) long, 8d coated nails 8" (203 mm) o.c. Vertical joints located over studs. Joints staggered each layer. 1/2" (12.7 mm) eXP Sheathing applied horizontally to exterior side of wood studs with 1-3/4" (44.5 mm) galvanized roofing nails 6" (152 mm) o.c. Vertical joints located over studs and staggered between adjacent rows. Exterior clay brick veneer with 1" (25.4 mm) air space between brick and exterior sheathing and 20-gauge corrugated wall ties fastened to each stud with 2-3/8" (60.3 mm) long, 8d coated nails every 6th course.		



**GYPSON BOARD PARTITIONS – WOOD FRAMING (LOAD-BEARING) – EXTERIOR WALLS – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
44	2 Hr.	U371 WP 8417	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to interior side of 2x4 (38.1 mm x 88.9 mm) wood studs 16" (406 mm) o.c. with 1-1/4" (31.8 mm) type S screws 12" (305 mm) o.c. Face layer applied horizontally with 2" (50.8 mm) Type S screws 12" (305 mm) o.c. 5/8" (15.9 mm) eXP Fire-Shield Sheathing applied vertically or horizontally to exterior side with 1-3/4" (44.5 mm) galvanized roofing nails or 2" (50.8 mm) Type S screws, 8" (203 mm) o.c. Joints staggered each layer and side. Pre-furred wire stucco netting applied with 1" (25.4 mm) long steel staples 7" (178 mm) o.c. 3/4" (19.1 mm) Portland cement stucco applied over stucco net. 3" (76.2 mm) mineral wool insulation in stud cavity.</p>		

**GYPSON BOARD PARTITIONS – STEEL FRAMING (NON-LOAD-BEARING)**

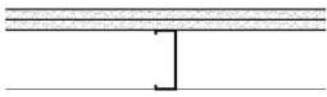
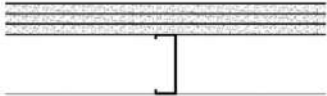
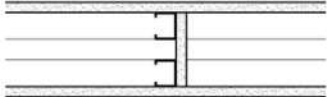
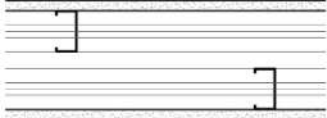
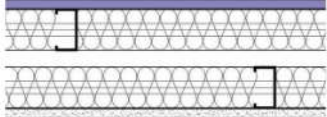
45	30 Min.	W411 WP 0703	 <p>5/8" (15.9 mm) High Strength Fire-Shield 30 Gypsum Board applied vertically or horizontally to each side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c.</p> <p>Sound rating with 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	36	NGC 2014006
46	1 Hr.	W411	 <p>Base layer 5/8" (15.9 mm) High Strength Fire-Shield 30 Gypsum Board applied vertically or horizontally to each side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally with 1-5/8" (41.3 mm) Type S screws 16" (406 mm) o.c.</p> <p>Sound rating with 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	46	NGC 2014005
47	1 Hr.	WP 1340	 <p>5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side of 1-5/8" (41.3 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs.</p> <p>Sound rating with 2-1/2" (63.6 mm) steel studs.</p>	38	NGC 2384
48	1 Hr.	V438 U465 WP 1109	 <p>5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs.</p> <p>Sound rating with 2-1/2" (63.6 mm) glass fiber insulation in stud cavity.</p>	40	NGC 2438
49	1 Hr.	V438 U465	 <p>5/8" (15.9 mm) Fire-Shield Gypsum Board applied horizontally to each side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c.</p>		NGC 2018165
50	1 Hr.	V438 U465 WP 1114	 <p>5/8" (15.9 mm) High Strength Fire-Shield 60 Gypsum Board applied vertically to each side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 12" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	45	NGC 2018165
51	1 Hr.	V438 U465 WP 1015.1	 <p>5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to opposite side of studs with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	55	OL14-0404
52	1 Hr.	V438 U465	 <p>5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to one side with 1-5/8" (41.3 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. 2-1/2" (63.6 mm) glass fiber insulation in stud cavity.</p>	50	NGC 2522

**GYPSON BOARD PARTITIONS – STEEL FRAMING (NON-LOAD-BEARING) – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
53	1 Hr.	V438 U465	5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to opposite side of studs with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to studs through the SoundBreak XP Wall Board with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	57	RAL-TL06-334
54	1 Hr.	V438 U465	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to one side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. Resilient channels 24" (610 mm) o.c. applied horizontally to opposite side with 1/2" (12.7 mm) Type S-12 screws. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to channels with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	51	NGC 2016017
55	1 Hr.	V438 U465	5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. Resilient channels 24" (610 mm) o.c. applied horizontally to opposite side with 1/2" (12.7 mm) Type S-12 screws. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to channels with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	56	NGC 2016018
56	1 Hr.	V450 V438 U465	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to both sides of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs.	39	RAL TL05-078
57	1 Hr.	V483	5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to opposite side of studs with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. 3" (76.2 mm) mineral fiber insulation friction fit in stud cavity.	54	RAL TL07-389
58	1 Hr.	V401 V438 WP 1071	1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically or horizontally to each side of 2-1/2" (63.6 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. 2" (50.8 mm) mineral fiber insulation, 2.5 pcf (40 kg/m <sup>3</sup> ), friction fit in stud cavity.  Sound rating with 3-5/8" (92.1 mm) steel studs and 3" (76.2 mm) mineral fiber insulation in stud cavity.	45 47	NGC 2179 NGC 2017009
59	1 Hr.	W472 WP 1298	1/2" (12.7 mm) PermaBASE Cement Board applied vertically or horizontally to one side of 3-5/8" (92.1 mm) steel studs 16" (406 mm) o.c. with 1-1/8" (28.6 mm) cement board screws at 8" (203 mm) o.c. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to opposite side with 1-1/4" (31.8 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. 3" (76.2 mm) mineral fiber insulation friction fit in stud cavity.	40	NGC 2018037



**GYPSON BOARD PARTITIONS – STEEL FRAMING (NON-LOAD-BEARING) – CONTINUED**

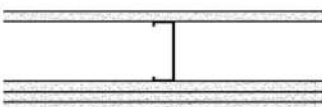
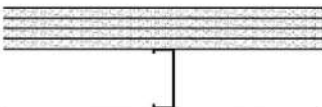
Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
60	1 Hr.	V497 WP 1299	 <p>Base layer 5/8" (15.9 mm) Fire Shield Gypsum Board applied vertically to one side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. ProForm® Quick Set™ Setting Compound applied to base layer with 1/4" x 1/4" (6.4 mm x 6.4 mm) notched trowel producing continuous beads. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to studs with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. starting 6" (152 mm) from the bottom of the gypsum board.</p> <p>Sound rating with studs 16" (406 mm) o.c. and 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	38	NGC 2013013
61	1 Hr.	V497 WP 1297	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to one side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. at vertical joints and intermediate studs. Second layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 24" (610 mm) o.c. Face layer Fire-Shield Gypsum Board applied vertically with 2-1/4" (57.2 mm) Type S screws 12" (203 mm) o.c. Joints staggered each layer and side.</p> <p>Sound rating with 3-1/2" (63.5 mm) glass fiber insulation in stud cavity.</p>	42	NGC 2018048
62	1 Hr.	U420 WP 5041	 <p>5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to double row of 1-5/8" (41.3 mm) steel studs 24" (610 mm) o.c. and minimum 1" (25.4 mm) apart with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints 12" (305 mm) o.c. at intermediate studs. 5/8" (15.9 mm) gypsum board gussets 12" (305 mm) long and minimum 4-1/2" (114 mm) wide located at 1/3 points used as cross braces fastened to stud pairs with three 1" (25.4 mm) Type S screws at each stud. Optionally, 25-gauge minimum 4-1/2" (114 mm) long stud or runner pieces may be used as cross braces and applied with two 1/2" (12.7 mm) self-drilling screws at each end. Joints staggered on opposite sides.</p> <p>Sound rating with 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	52	TL 76-155
63	1 Hr.	V488 WP 5040	 <p>5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to each side of a double row of 2-1/2" (63.6 mm) steel studs 24" (610 mm) o.c. evenly staggered between the two rows and a minimum 1" (25.4 mm) apart. Horizontally applied gypsum board fastened with 1" (25.4 mm) Type S or S-12 screws 8" (203 mm) o.c. in the field and 12" (305 mm) o.c. at floor and ceiling runners. Vertically applied gypsum board fastened with 1" (25.4 mm) Type S or S-12 screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs and floor and ceiling runners. Lateral bracing provided at each row of studs. Joints staggered on opposite sides.</p> <p>Sound rating with 2-1/2" (63.6 mm) glass fiber insulation in each stud cavity.</p>	56	NGC 2015108
64	1 Hr.	V488	 <p>5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of a double row of 2-1/2" (63.6 mm) steel studs 24" (610 mm) o.c. evenly staggered between the two rows and a minimum 1" (25.4 mm) apart. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to opposite side with 1" (25.4 mm) Type S or S-12 screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs and floor and ceiling runners. Lateral bracing provided at each row of studs. Joints staggered on opposite sides. 2-1/2" (63.6 mm) glass fiber insulation in each stud cavity.</p>	60	NGC 2015107

**GYPSON BOARD PARTITIONS – STEEL FRAMING (NON-LOAD-BEARING) – CONTINUED**

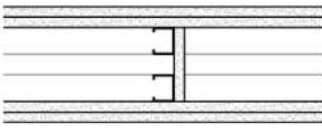
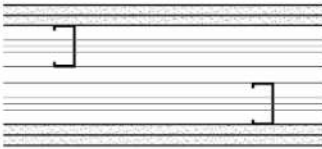
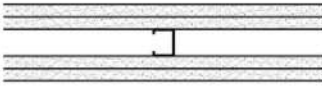
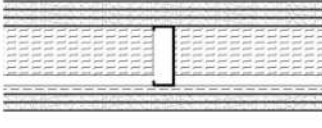
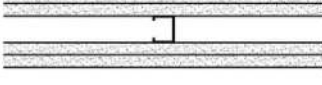
Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
65	1 Hr.	V488	5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of a double row of 2-1/2" (63.6 mm) steel studs 24" (610 mm) o.c. evenly staggered between the two rows and a minimum 1" (25.4 mm) apart. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to opposite side with 1" (25.4 mm) Type S or S-12 screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs and floor and ceiling runners. Fire-Shield Gypsum Board applied vertically to studs through the SoundBreak XP Wall Board with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Lateral bracing provided at each row of studs. Joints staggered on opposite sides. 2-1/2" (63.6 mm) glass fiber insulation in each stud cavity.	62	NGC 2015110
66	2 Hr.	W432 WP 1571	3/4" (19.1 mm) Ultra-Shield FS Gypsum Board applied vertically or horizontally to each side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type S screws 8" (203 mm) o.c. 3" (76.2 mm) mineral fiber insulation, 2.5 pcf (40 kg/m <sup>3</sup> ), friction fit in stud cavity.	50	NGC 2015062
67	2 Hr.	V438	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to each side of 2-1/2" (63.6 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side with 1-5/8" (41.3 mm) Type S screws 16" (406 mm) o.c. at vertical joints and intermediate studs and 12" (305 mm) o.c. at floor and ceiling runners. Joints staggered each layer and side.		
68	2 Hr.	V438	Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side of 1-5/8" (41.3 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically or horizontally with 1-5/8" (41.3 mm) Type S screws 16" (406 mm) o.c. Screws offset 8" (203 mm) from base layer. Joints staggered each layer and side.	55	NGC 2017011
69	2 Hr.	V438 U411 WP 1575	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side of 2-1/2" (63.5 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side with 1-5/8" (41.3 mm) Type S screws 16" (406 mm) o.c. at vertical joints and intermediate studs and 12" (305 mm) o.c. at floor and ceiling runners. Joints staggered each layer and side.	54	NGC 2017104
70	2 Hr.	V438 U411 WP 1547	Base layer 5/8" (15.9 mm) High Strength Fire-Shield 60 Gypsum Board applied vertically to each side of 2-1/2" (63.5 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. Face layer 5/8" (15.9 mm) High Strength Fire-Shield 60 Gypsum Board applied vertically to each side with 1-5/8" (41.3 mm) Type S screws 16" (406 mm) o.c. at vertical joints and intermediate studs and 12" (305 mm) o.c. at floor and ceiling runners. Joints staggered each layer and side.	50	NGC 2018160
71	2 Hr.	V484 WP 1457	Base layer 5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. Base layer of 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to opposite side with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum board applied vertically to each side with 1-5/8" (41.3 mm) Type S screws 16" (406 mm) o.c. Joints staggered each layer and side. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	60	RAL TL07-168



**GYPSON BOARD PARTITIONS – STEEL FRAMING (NON-LOAD-BEARING) – CONTINUED**

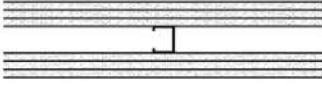
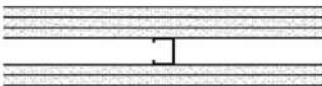

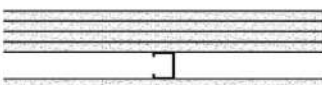
Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
72	2 Hr.	V438 U412	 <p>Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side of 2-1/2" (63.5 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer and side.</p> <p>Sound rating with 3-5/8" (92.1 mm) steel studs. 48 NGC 2282 Sound rating with 3-5/8" (92.1 mm) steel studs and 3" (76.2 mm) glass fiber insulation in stud cavity. 53 NGC 2288</p>	48	NGC 2282
73	2 Hr.	V450	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board or eXP Fire-Shield Sheathing applied vertically to both sides of 3-5/8" (92.1 mm) steel studs at 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. at vertical joints and intermediate studs and 12" (305 mm) o.c. at floor and ceiling runners. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board or eXP Fire-Shield Sheathing applied vertically with 1-5/8" (41.3 mm) Type S screws 16" (406 mm) o.c. at vertical joints and intermediate studs and 12" (305 mm) o.c. at floor and ceiling runners. Joints staggered each layer and side.</p> <p>Sound rating with 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	56	NGC 3022
74	2 Hr.	V484	 <p>Base layer 5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to one side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Base layer of 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to opposite side with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer and side. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	60	RAL TL07-168
75	2 Hr.	W472 WP 1717	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board or 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side of 3-5/8" (92.1 mm) steel studs 16" (406 mm) o.c. with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board or 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to one side with 1-5/8" (41.3 mm) Type S screws 16" (406 mm) o.c. 1/2" (12.7 mm) PermaBASE Cement Board applied vertically to opposite side with 1-5/8" (41.3 mm) cement board screws 8" (203 mm) o.c. 3" (76.2 mm) mineral fiber insulation friction fit in stud cavity. Joints staggered each layer and side.</p>	43	NGC 2018036
76	2 Hr.	WP 1567 V499	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side of 3-1/2" (88.9 mm) steel studs 24" (610 mm) o.c. with 1-1/8" (28.6 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. Second layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to one side with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Face layer Fire-Shield Gypsum Board applied vertically to one side with 2-1/4" (57.2 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. Joints staggered each layer and side.</p> <p>Sound rating with 3-1/2" (88.9 mm) glass fiber insulation in stud cavity. 52 NGC 2016024</p>	52	NGC 2016024
77	2 Hr.	V497 WP 1715	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to one side of 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. at vertical joints and intermediate studs. Second layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 24" (610 mm) o.c. Third layer Fire-Shield Gypsum Board applied vertically with 2-1/2" (63.5 mm) Type S screws 16" (406 mm) o.c. Face layer Fire-Shield Gypsum Board applied vertically with 3" (76.2 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer and side.</p> <p>Sound rating with 3-1/2" (63.5 mm) glass fiber insulation in stud cavity. 44 NGC 2018047</p>	44	NGC 2018047

**GYPSUM BOARD PARTITIONS – STEEL FRAMING (NON-LOAD-BEARING) – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
78	2 Hr.	U420 WP 5105	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side of a double row of 1-5/8" (41.3 mm) steel studs 24" (610 mm) o.c. and not less than 1" (25.4 mm) apart with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. Gypsum board pieces 12" (305 mm) long by not less than 4-1/2" (114 mm) wide located at 1/3 points used as cross braces fastened to stud pairs with three 1" (25.4 mm) Type S screws at each end of brace. Optionally, 25-gauge studs or runner pieces not less than 4-1/2" (114 mm) long may be used as cross braces and fastened with two No. 8 x 1/2" (12.7 mm) self-drilling steel screws at each end. Joints staggered each layer and side.</p> <p>Sound rating with 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	57	TL 76-156
79	2 Hr.	V488 WP 5072	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to each side of a double row of 2-1/2" (63.6 mm) steel studs 24" (610 mm) o.c. evenly staggered between the two rows with 1" (25.4 mm) Type S or S-12 screws 16" (406 mm) o.c. Face layer Fire-Shield Gypsum Board applied vertically or horizontally to each side with 1-5/8" (41.3 mm) Type S or S-12 screws 16" (406 mm) o.c. Screws offset 8" (203 mm) from screws in base layer. Joints staggered each layer and side.</p> <p>Sound rating with 2-1/2" (63.6 mm) glass fiber insulation in stud cavity on each side.</p>	64	NGC 2015112
80	3 Hr.	V455 WP 2752	 <p>Base layer 3/4" (19.1 mm) Ultra-Shield FS Gypsum Board applied vertically or horizontally to each side of 1-5/8" (41.3 mm) steel studs 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type S screws 16" (406 mm) o.c. Face layer 3/4" (19.1 mm) Ultra-Shield FS Gypsum Board applied vertically or horizontally to each side with 2" (50.8 mm) Type S screws 16" (406 mm) o.c.</p> <p>Sound rating with 1-1/2" (41.3 mm) glass fiber insulation in stud cavity</p>	55	NGC 2017037
81	3 Hr.	V455	 <p>Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to one side of 3-1/2" (88.9 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S-12 screws 24" (610 mm) o.c. Second layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S-12 screws 24" (610 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically with 2-1/4" (57.2 mm) Type S-12 screws 12" (305 mm) o.c. Resilient channels 24" (610 mm) o.c. applied horizontally to opposite side with 1/2" (12.7 mm) Type S-12 screws. Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to channels with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. 3" (76.2 mm) mineral wool insulation in stud cavity.</p>		
82	3 Hr.	W455 WP 2752	 <p>Base layer 3/4" (19.1 mm) Ultra-Shield FS Gypsum Board applied vertically to each side of 1-5/8" (41.3 mm) steel studs 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type S screws 16" (406 mm) o.c. at vertical joints and intermediate studs. Face layer 3/4" (19.1 mm) Ultra-Shield FS Gypsum Board applied vertically to each side with 2" (50.8 mm) Type S screws 16" (406 mm) o.c. at vertical joints and intermediate studs. Joints staggered each layer and side.</p> <p>Sound rating with 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.</p>	55	NGC 2017037



**GYPSON BOARD PARTITIONS – STEEL FRAMING (NON-LOAD-BEARING) – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
<b>83</b> 	3 Hr.	V438 WP 2921	Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side of 1-5/8" (41.3 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Second layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side with 1-5/8" (41.3 mm) Type S screws 24" (610 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically or horizontally to each side with 2-1/4" (57.2 mm) Type S screws 12" (305 mm) o.c. Screws offset 6" (152 mm) from layer below. Joints staggered each layer and side.	48	NGC 2631
			Sound rating with 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.	53	NGC 2636
			Sound rating with 3-5/8" (92.1 mm) steel studs and 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	59	NGC 2017012
<b>84</b> 	3 Hr.	V438 WP 2801	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side of 1-5/8" (41.3 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Second layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side with 1-5/8" (41.3 mm) Type S screws 24" (610 mm) o.c. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to each side with 2-1/4" (57.2 mm) Type S screws 12" (305 mm) o.c. Screws offset 6" (152 mm) from layer below. Joints staggered each layer and side.	59	NGC 2016101
			Sound rating with 3-5/8" (92.1 mm) steel studs and 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.		
<b>85</b> 	4 Hr.	V438 WP 2960	Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side of 1-5/8" (41.3 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Second layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side with 1-5/8" (41.3 mm) Type S screws 24" (610 mm) o.c. Third layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side with 2-1/4" (57.2 mm) Type S screws 24" (610 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically or horizontally to each side with 2-5/8" (66.7 mm) Type S screws, 12" (305 mm) o.c. Screws offset 6" (152 mm) from layer below. Joints staggered each layer and side.	51	NGC 2633
			Sound rating with 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.	55	NGC 2634
			Sound rating with 3-5/8" (92.1 mm) steel studs and 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.	62	NGC 2017013
<b>86</b> 	4 Hr.	V438 WP 2946	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side of 1-5/8" (41.3 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Second layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side with 1-5/8" (41.3 mm) Type S screws 24" (610 mm) o.c. Third layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side with 2-5/8" (66.7 mm) Type S screws 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to each side with 3" (76.2 mm) Type S screws 12" (305 mm) o.c. Screws offset 6" (152 mm) from layer below. Joints staggered each layer and side.	61	NGC 2016100
			Sound rating with 3-5/8" (92.1 mm) steel studs and 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.		

**GYPSON BOARD PARTITIONS – STEEL FRAMING (LOAD-BEARING)**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
87	1 Hr.	W465 W469 WP 1213	5/8" (15.9 mm) High Strength Fire-Shield 60 Gypsum Board applied vertically to each side of 3-1/2" (88.9 mm) 20 gauge steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S-12 screws at 12" (305 mm) o.c. Studs laterally braced and fastened to tracks. Joints staggered on opposite sides. 3-1/2" (88.9 mm) glass fiber or mineral fiber batt insulation in stud cavity.	40	NGC 2020021
88	1 Hr.	W469 WP 1212	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side of 3-1/2" (88.9 mm) 20-gauge steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S-12 screws at 12" (305 mm) o.c. Studs laterally braced and fastened to tracks. Joints staggered on opposite sides.  Sound rating with 3" (76.2 mm) glass fiber insulation in stud cavity.	39	NGC 2020022
89	2 Hr.	W469 WP 1574	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side of 3-1/2" (88.9 mm) 20-gauge steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to each side with 1-5/8" (41.3 mm) Type S-12 screws 12" (305 mm) o.c. Studs laterally braced and fastened to tracks. Joints staggered each layer and side.  Sound rating with 3" (76.2 mm) glass fiber insulation in stud cavity.	50	NGC 2020023
90	2 Hr.	W450	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to each side of 6" (152 mm) steel studs 16" (406 mm) o.c. with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to each side with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer and side. 4" x 4" (102 mm x 102 mm) rectangular Hollow Steel Section (HSS) centered within stud cavity.		
91	3 Hr.	U426	Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side of 3-1/2" (88.9 mm) 20-gauge steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S-12 screws 48" (1,219 mm) o.c. Second layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side with 1-5/8" (41.3 mm) Type S-12 screws 48" (1,219 mm) o.c. Third layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side with 2-1/4" (57.2 mm) Type S-12 screws 48" (1,219 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically or horizontally to each side with 2-5/8" (66.7 mm) Type S-12 screws 12" (305 mm) o.c. Horizontally applied face layer fastened to inner layers with 1-1/2" (38.1 mm) Type G screws midway between studs. Studs laterally braced and fastened to tracks. Joints staggered each layer and side.		

**GYPSON BOARD PARTITIONS – DURASAN PREFINISHED GYPSON PANELS**

92	1 Hr.	U405 WP 6040	5/8" (15.9 mm) Durasan Prefinished Gypsum Board applied vertically to each side of 2-1/2" (63.6 mm) steel studs 24" (610 mm) o.c. with steel batten retainers fastened to each stud with 1-1/4" (31.8 mm) Type S screws 9" (229 mm) o.c. Joints staggered on opposite sides.  Sound rating with 3" (76.2 mm) glass fiber insulation in stud cavity.	41	G&H NG-145FT
93	2 Hr.	U411	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to 2-1/2" (63.6 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at vertical joints and 12" (305 mm) o.c. at intermediate studs. Face layer 5/8" (15.9 mm) Durasan Prefinished Gypsum Board laminated to base layer with joint compound applied with a notched spreader producing continuous 3/8" (9.5 mm) beads 2" (50.8 mm) o.c. and fastened to floor and ceiling runners with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer and side.  Sound rating with 3" (76.2 mm) glass fiber insulation in stud cavity.	56	NGC 3022



**SOLID GYPSUM BOARD PARTITIONS**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
94	2 Hr.	U525	1" (25.4 mm) Shaftliner XP or eXP Shaftliner applied to 25-gauge, 1" (25.4 mm) x 2-1/4" (57.2 mm) high steel angles along floor and ceiling with two 1-5/16" (33.3 mm) Type S screws at top and bottom. 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side with ProForm® Quick Set™ Setting Compound combed over entire contact surface and 1-5/16" (33.3 mm) Type S screws 24" (610 mm) o.c. horizontally and vertically and fastened to angles with 1-7/8" (47.6 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer and side.	34	NGC 2359
95	2 Hr.	U505 WP 7245	22-gauge, 3/4" (19.1 mm) x 1-1/4" (31.8 mm) high steel angle along floor and 22-gauge, 3/4" (19.1 mm) x 1-1/4" (31.8 mm) x 30" (762 mm) long steel angles fastened to end walls and spaced maximum 5' (1,524 mm) o.c. 25-gauge, 1" (25.4 mm) x 1-5/8" (41.3 mm) steel channel fastened to ceiling with one leg aligned with wall angles and oriented so the first two layers of gypsum board can be inserted into the channel. 25-gauge, 3/4" (19.1 mm) x 1-1/4" (31.8 mm) horizontal bracing angles spaced 5' (1,524 mm) o.c. with 1-1/4" (31.8 mm) leg fastened to 1-1/4" (31.8 mm) leg of wall angles. Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with top edge inserted into ceiling channel to floor, wall, and bracing angles with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. Second layer 1" (25.4 mm) Shaftliner XP or eXP Shaftliner applied vertically with top edge inserted into ceiling channel with ProForm Quick Set Setting Compound combed over entire contact surface and to floor, wall and bracing angles with 2-1/4" (57.2 mm) Type S-12 screws 12" (305 mm) o.c. Additional angles fastened to floor and end walls with 1-1/4" (31.8 mm) leg flat against the shaftliner panel. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with ProForm Quick Set Setting Compound combed over entire contact surface and to ceiling channel and floor and wall angles with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. Joints staggered each layer and side.		
96	2 Hr.	U529	25-gauge 1" (25.4 mm) x 2" (50.8 mm) steel angles fastened to floor, ceiling and end walls. Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to angles with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Second layer 1" (25.4 mm) Shaftliner XP or eXP Shaftliner applied vertically with ProForm Quick Set Setting Compound combed over entire contact surface and 1-1/2" (38.1 mm) Type G screws 24" (610 mm) o.c. vertically and horizontally. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically with ProForm Quick Set Setting Compound combed over entire contact surface and 1-1/2" (38.1 mm) Type G screws 24" (610 mm) o.c. vertically and horizontally. Joints staggered each layer and side.		

**GYPSUM BOARD PARTITIONS – SHAFTWALL SYSTEMS**

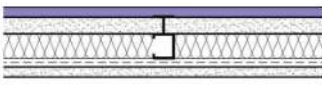
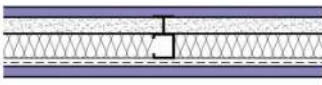
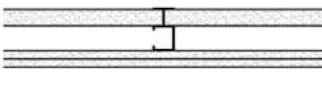
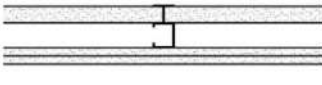
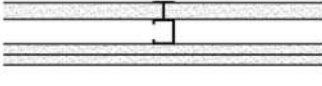
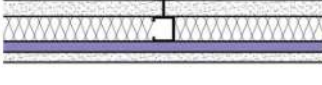
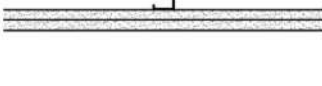
97	1 Hr.	W419 U499 WP 6751	1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to studs with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. on side opposite shaftliner panel. Sound rating with 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.	37 42	NGC 2001003 NGC2016033
98	1 Hr.	W419 U499	1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. 5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to studs with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. on side opposite shaftliner panel. 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.	44	NGC 2015035
99	1 Hr.	W419	1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.5 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. 5/8" (15.9 mm) High Strength Fire-Shield 60 Gypsum Board applied vertically or horizontally to studs with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. at vertical joints and intermediate studs and floor and ceiling runners on side opposite shaftliner panel.		

**GYPSON BOARD PARTITIONS – SHAFTWALL SYSTEMS – CONTINUED**

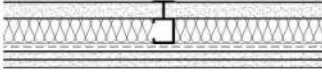

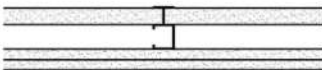
Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
100	1 Hr.	W419 U499	1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. Resilient channels applied horizontally to studs 24" (610 mm) o.c. with 1/2" (12.7 mm) pan-head screws on side opposite shaftliner panel. 5/8" (19.1 mm) Fire-Shield Gypsum Board applied vertically to channels with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.	48	NGC 2541
101	2 Hr.	W441 WP 7066	1" (25.4 mm) eXP Shaftliner inserted between flanges of 4" (102 mm) steel C-T or C-H studs 24" (610 mm) o.c. 3/4" (19.1 mm) Ultra-Shield FS Gypsum Board applied to studs with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. on side opposite shaftliner panel. 3" (76.2 mm) mineral wool insulation in stud cavity.	51	NGC 2015043
102	2 Hr.	U429	1" (25.4 mm) Shaftliner XP or eXP Shaftliner installed between flanges of 2-1/2" (63.6 mm) steel C-T or C-H studs 24" (610 mm) o.c. 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to each side with 1" (25.4 mm) Type S screws at 12" (305 mm) o.c. Sound rating with 1-1/2" (38.1 mm) glass fiber insulation in stud cavity	42 48	NGC 2535 NGC 2017005
103	2 Hr.	W419 U498 WP 7079 ASW 1215	1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically or horizontally to each side of studs with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Sound rating with 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.	42 48	NGC 2535 NGC 2534
104	2 Hr.	W419 U498 WP 7061	1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically or horizontally to each side of studs with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Joints staggered each side. Sound rating with 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.	42 48	NGC 2535 NGC 2016034
105	2 Hr.	W419 U498	1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to shaftliner side of studs with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. 5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to opposite side with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Joints staggered each side. 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.	53	NGC 2015036
106	2 Hr.	W419 U498 WP 7062	1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically or horizontally to shaftliner side of studs with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Resilient channels applied horizontally to studs 24" (610 mm) o.c. with 1/2" (12.7 mm) pan-head screws on side opposite shaftliner panel. 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to channels with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Joints staggered on opposite sides. 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.	53	NGC 2017008
107	2 Hr.	W419 U498	1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to shaftliner side of studs with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Resilient channels applied horizontally to studs 24" (610 mm) o.c. with 1/2" (12.7 mm) pan-head screws on side opposite shaftliner panel. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to channels with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Joints staggered on opposite sides. 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.	52	NGC 2538



**GYPSON BOARD PARTITIONS – SHAFTWALL SYSTEMS – CONTINUED**


Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
108	2 Hr.	W419 U498	 <p>1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. 5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to shaftliner side of studs with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Resilient channels applied horizontally to studs 24" (610 mm) o.c. with 1/2" (12.7 mm) pan-head screws on side opposite shaftliner panel. 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to channels with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Joints staggered on opposite sides. 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.</p>	55	NGC 2015041
109	2 Hr.	W419 U498	 <p>1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. 5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to shaftliner side of studs with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Resilient channels applied horizontally to studs 24" (610 mm) o.c. with 1/2" (12.7 mm) pan-head screws on side opposite shaftliner panel. 5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to channels with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Joints staggered on opposite sides. 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.</p>	56	NGC 2015040
110	2 Hr.	U428	 <p>1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T or C-H studs 24" (610 mm) o.c. Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied horizontally to studs with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. on side opposite shaftliner panel. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer.</p> <p>Sound rating with 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.</p>	40	NGC 2615
111	2 Hr.	W419 U497	 <p>1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to studs with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. on side opposite shaftliner panel. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer.</p> <p>Sound rating with 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.</p>	40	NGC 2615
112	2 Hr.	W419 U497 WP 7066.1	 <p>1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to studs with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. on side opposite shaftliner panel. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer.</p> <p>Sound rating with 6" (152 mm) studs using 5" (127 mm) glass fiber insulation in stud cavity.</p>	41	NGC 2508
113	2 Hr.	W419 U497	 <p>1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. Base layer 5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to studs with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. on side opposite shaftliner panel. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer. 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.</p>	51	NGC 2015037
114	2 Hr.	W419	 <p>1" (25.4 mm) eXP Shaftliner inserted between flanges of 2-1/2" (63.5 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. Base layer 5/8" (15.9 mm) High Strength Fire-Shield 60 Gypsum Board applied vertically to studs with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. on side opposite shaftliner panel. Face layer 5/8" (15.9 mm) High Strength Fire-Shield 60 Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer.</p>		

**GYPSON BOARD PARTITIONS – SHAFTWALL SYSTEMS – CONTINUED**

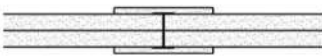
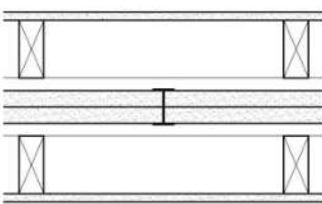
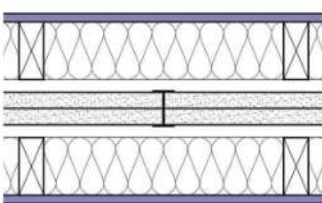
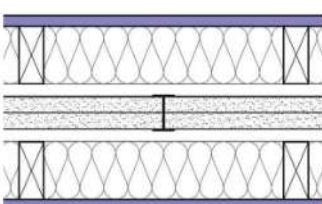
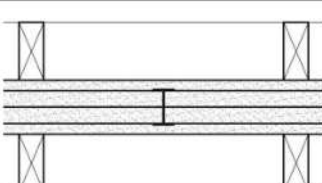
Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
115	2 Hr.	W419 U497 WP 7064	 <p>1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. Resilient channels applied horizontally to studs 24" (610 mm) o.c. with 1/2" (12.7 mm) pan-head screws on side opposite shaftliner panel. Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to channels with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer. 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.</p>	52	NGC 2017007
116	2 Hr.	W419 U497	 <p>1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. Resilient channels applied horizontally to studs 24" (610 mm) o.c. with 1/2" (12.7 mm) pan-head screws on side opposite shaftliner panel. Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to channels with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer. 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.</p>	51	NGC 2016038
117	2 Hr.	W419 U497	 <p>1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. Resilient channels applied horizontally to studs 24" (610 mm) o.c. with 1/2" (12.7 mm) pan-head screws on side opposite shaftliner panel. Base layer 5/8" (15.9 mm) SoundBreak XP Wall Board applied vertically to channels with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Joints staggered each layer.</p> <p>Sound rating with 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.</p>	53	NGC 2015039
118	3 Hr.	W419 W414 WP 7424	 <p>1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H or I studs 24" (610 mm) o.c. Base layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically to studs with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. on side opposite shaftliner panel. Second layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically to studs with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Second layer fastened to base layer 2" (50.8 mm) from each side of vertical joints with 1-1/2" (38.1 mm) Type G screws 12" (305 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically to studs with 2-1/4" (57.2 mm) Type S screws 12" (305 mm) o.c. starting 6" (152 mm) from the bottom of the gypsum board. Face layer fastened to inner layers 2" (50.8 mm) from each side of vertical joints with 1-1/2" (38.1 mm) Type G screws 12" (305 mm) o.c.</p> <p>Sound rating with 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.</p>	50	NGC 2016039



**GYPSON BOARD PARTITIONS – SHAFTWALL SYSTEMS – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
119	4 Hr.	W419 V451 WP 7640	 <p>1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2-1/2" (63.6 mm) steel C-T, C-H, or I studs 24" (610 mm) o.c. Base layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically to studs on side opposite shaftliner panel with 1-1/8" (28.6 mm) Type S screws 12" (305 mm) o.c. Second layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically to studs with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Third layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically to studs with 2-1/4" (57.2 mm) Type S screws 12" (305 mm) o.c. and fastened to inner layers of gypsum board with 1-1/2" (38.1 mm) Type G screws 12" (305 mm) o.c. centered between Type S screws. Hat-shaped furring channels applied horizontally over third layer to studs 16" (406 mm) o.c. with 2-1/4" (57.2 mm) Type S screws. Fourth layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically to furring channels with 1-1/8" (28.6 mm) Type S screws 12" (305 mm) o.c. and 8" (203 mm) o.c. at horizontal joints. Fifth layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically to furring channels with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. and 8" (203 mm) o.c. at horizontal joints and to fourth layer with 1-1/2" (38.1 mm) Type G screws 16" (406 mm) o.c. centered between the furring channels. Joints staggered each layer.</p> <p>Sound rating with 1-1/2" (38.1 mm) glass fiber insulation in stud cavity.</p>	58	NGC 2016040

**AREA SEPARATION FIRE WALLS**

120	2 Hr.	WHI 694-0220.6	 <p>Two layers of 1" (25.4 mm) Shaftliner XP inserted between flanges of 2" (50.8 mm) steel H-studs 24" (610 mm) o.c. H-studs and tracks covered by 1/2" (12.7 mm) Fire-Shield C Gypsum Board in 6" (152 mm) wide strips.</p>	35	NGC 2827
121	2 Hr.	U347 ASW 0998	 <p>Two layers of 1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2" (50.8 mm) steel H-studs 24" (610 mm) o.c. 3/4" (19.1 mm) air space each side. 2x4 (38.1 mm x 88.9 mm) wood stud partition with one layer of 1/2" (12.7 mm) Gold Bond Gypsum Board on each side.</p> <p>Sound rating with 3-1/2" (88.9 mm) glass fiber insulation in stud cavity on each side.</p>	61	RAL-TL05-199
122	2 Hr.	U347	 <p>Two layers of 1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2" (50.8 mm) steel H-studs 24" (610 mm) o.c. 3/4" (19.1 mm) air space each side. 2x4 (38.1 mm x 88.9 mm) wood stud partition with one layer of 1/2" (12.7 mm) SoundBreak XP Wall Board on each side and 3-1/2" (88.9 mm) glass fiber insulation in stud cavity on each side.</p>	65	NGC 2012081
123	2 Hr.	U347 ASW 0800	 <p>Two layers of 1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2" (50.8 mm) steel H-studs 24" (610 mm) o.c. 3/4" (19.1 mm) air space and adjacent construction each side. Sound rating with 2x4 (38.1 mm x 88.9 mm) wood stud partition and one layer of 5/8" (15.9 mm) SoundBreak XP Wall Board each side with 3-1/2" (88.9 mm) glass fiber insulation in stud cavity.</p>	67	NRCC B-3451.1
124	3 Hr.	W454	 <p>Two layers of 1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2" (50.8 mm) steel H-studs 24" (610 mm) o.c. 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically or horizontally to each side of H-studs with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. 2x4 (38.1 mm x 88.9 mm) wood stud partition on each side.</p>	38	NGC 2017015

**AREA SEPARATION FIRE WALLS – CONTINUED**

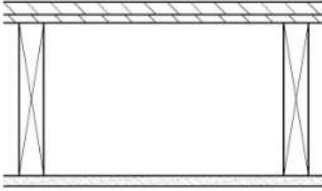
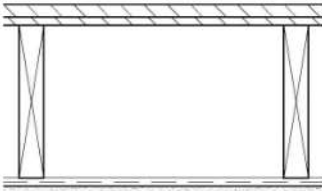
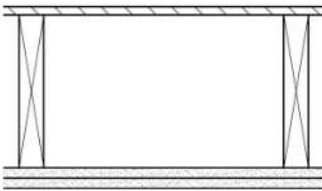
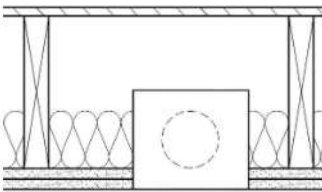
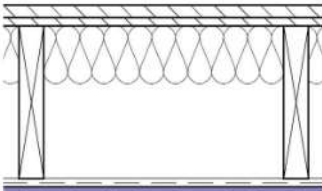
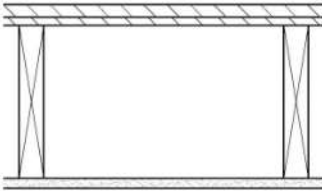
Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
125	3 Hr.	W454	Two layers of 1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2" (50.8 mm) steel H-studs 24" (610 mm) o.c. 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically or horizontally to each side of H-studs with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. 2x4 (38.1 mm x 88.9 mm) wood stud partition with one layer of 1/2" (12.7 mm) Gold Bond Gypsum Board on each side.	46	NGC 2012027
			Sound rating with 1/2" (12.7 mm) Fire-Shield C Gypsum Board on wood stud partitions.	52	NGC 2017021
126	3 Hr.	W454	Two layers of 1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2" (50.8 mm) steel H-studs 24" (610 mm) o.c. 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically or horizontally to each side of H-studs with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. 2x4 (38.1 mm x 88.9 mm) wood stud partition with one layer of 1/2" (12.7 mm) Gold Bond Gypsum Board on each side. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity on one side.	54	NGC 2012026
			Sound rating with 1/2" (12.7 mm) Fire-Shield C Gypsum Board on wood stud partitions.	61	NGC 2017020
127	3 Hr.	W454 ASW 2100	Two layers of 1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2" (50.8 mm) steel H-studs 24" (610 mm) o.c. 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically or horizontally to each side of H-studs with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. 2x4 (38.1 mm x 88.9 mm) wood stud partition with one layer of 1/2" (12.7 mm) Gold Bond Gypsum Board on each side. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity on each side.	58	NGC 2017025
			Sound rating with 1/2" (12.7 mm) Fire-Shield C Gypsum Board on wood stud partitions.	62	NGC 2017019
128	3 Hr.	W454 ASW 2000	Two layers of 1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 2" (50.8 mm) steel H-studs 24" (610 mm) o.c. 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied vertically or horizontally to each side of H-studs with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. 2x4 (38.1 mm x 88.9 mm) wood stud partition with one layer of 5/8" (15.9 mm) SoundBreak XP Wall Board on each side. 3-1/2" (88.9 mm) glass fiber insulation in stud cavity on each side.	68	NGC 2017018

**GYPSON BOARD FLOOR/CEILING ASSEMBLIES – WOOD FRAMED**

129	1 Hr.	M563	5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to resilient channels 12" (305 mm) o.c. with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Resilient channels applied at right angles to 2x10 (38.1 mm x 241 mm) wood joists 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type S screws. Minimum 3-1/2" (88.9 mm) glass fiber or mineral fiber batt insulation installed directly over gypsum board. Wood joists supporting 15/32" (11.9 mm) wood structural panels and 15/32" (11.9 mm) wood structural panels finish floor or floor topping mixture.		
130	1 Hr.	M563	5/8" (15.9 mm) High Strength Fire-Shield 60 Gypsum Board applied at right angles to resilient channels 16" (406 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. Resilient channels applied at right angles to 2x10 (38.1 mm x 241 mm) wood joists 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type S screws. Minimum 3-1/2" (88.9 mm) glass fiber or mineral fiber batt insulation installed directly over gypsum board. Wood joists supporting 15/32" (11.9 mm) wood structural panels and 15/32" (11.9 mm) wood structural panels finish floor or floor topping mixture.		
131	1 Hr.	L522 FC 5410	1/2" (12.7 mm) Fire-Shield C Gypsum Board applied at right angles to 2x10 (38.1 mm x 241 mm) wood joists 16" (406 mm) o.c. with 1-3/4" (44.5 mm) long, 5d nails 6" (152 mm) o.c. Wood joists supporting 15/32" (11.9 mm) wood structural panels and nominal 1" (25.4 mm) wood finish floor or floor topping mixture.	37	NGC 4084
			IIC: No carpet – 32 IIC: Carpet and pad – 66		



**GYPSON BOARD FLOOR/CEILING ASSEMBLIES – WOOD FRAMED – CONTINUED**

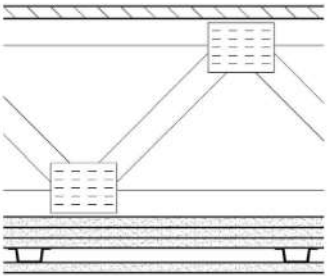
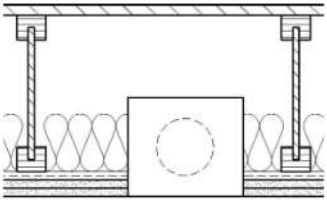
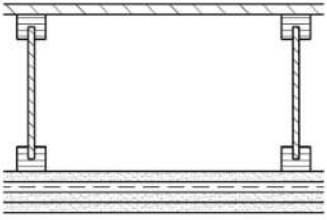
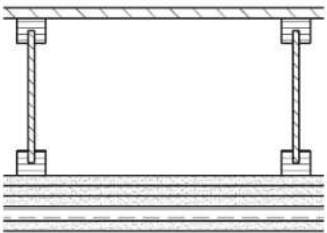
Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
132	1 Hr.	L501 FC 5420	 <p>5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to 2x10 (38.1 mm x 241 mm) wood joists 16" (406 mm) o.c. with 1-7/8" (47.6 mm) long, 6d nails 6" (152 mm) o.c. Wood joists supporting 15/32" (11.9 mm) wood structural panels and nominal 1" (25.4 mm) wood finish floor or floor topping mixture. IIC: No carpet – 32 IIC: Carpet and pad – 66</p>	37	NGC 4024
133	1 Hr.	L515 FC 5300	 <p>1/2" (12.7 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. at ends and 12" (305 mm) o.c. at intermediate channels. Gypsum board end joints located midway between continuous channels and fastened to additional channels 64" (1.6 m) long with screws 8" (203 mm) o.c. Resilient channels applied at right angles to 2x10 (38.1 mm x 241 mm) wood joists 16" (406 mm) o.c. with 1-7/8" (47.6 mm) long, 6d coated nails. Wood joists supporting 15/32" (11.9 mm) wood structural panels and nominal 1" (25.4 mm) wood finish floor or floor topping mixture.</p>	45	NGC 4010
134	1 Hr.	FC 5529	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to 2x10 (38.1 mm x 241 mm) wood joists 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type W or S screws 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to joists with 1-7/8" (47.6 mm) Type W or S screws 12" (305 mm) o.c. at joints and intermediate joists and 1-1/2" (38.1 mm) Type G screws 12" (305 mm) o.c. placed 2" (50.8 mm) from each side of end joints. Joints staggered each layer. Wood joists supporting 1/2" (12.7 mm) plywood. Ceiling provides 1-hour fire-resistance protection for framing, including trusses.</p>		
135	1 Hr.	M559	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to 2x10 (38.1 mm x 241 mm) wood joists 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 16" (406 mm) o.c. in the field and 8" (203 mm) at butt joints. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to joists with 2" (50.8 mm) Type W screws 8" (203 mm) o.c. in the field and at butt joints. Minimum 3-1/2" (88.9 mm) glass fiber or mineral fiber batt insulation installed directly over gypsum board. Wood joists supporting 19/32" (15.1 mm) wood structural panels.</p>		
136	1 Hr.	M514	 <p>3/4" (19.1 mm) SoundBreak XP Ceiling Board applied at right angles to resilient channels 24" (610 mm) with 1-1/8" (28.6 mm) Type S screws 12" (305 mm) o.c. Gypsum Board ends fastened to additional piece of resilient channel. End joints staggered 48" (1.22 m). Resilient channels applied at right angles to 2x10 (38.1 mm x 241 mm) wood joists 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type S screws. Wood joist supporting 15/32" (11.9 mm) plywood subfloor and nominal 1" (25.4 mm) wood finish floor or floor topping mixture. Maximum 3-1/2" (88.9 mm) glass fiber insulation secured against the underside of the subfloor with staples 12" (305 mm) o.c. IIC: 61</p>	59	NGC 5019008
137	2 Hr.	L505 FC 5724	 <p>Base layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to 2x10 (38.1 mm x 241 mm) wood joists 16" (406 mm) o.c. with 2-1/2" (63.6 mm) long, 8d nails 7" (178 mm) o.c. Resilient channels applied at right angles to wood joists through base layer 24" (610 mm) o.c. with 2-1/2" (63.6 mm) long, 8d nails. Face layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to channels with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Wood joists supporting 15/32" (11.9 mm) wood structural panels and nominal 1" (25.4 mm) wood finish floor or floor topping mixture.</p>		NGC 7019008

**GYPSON BOARD FLOOR/CEILING ASSEMBLIES – WOOD FRAMED – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
138	1 Hr.	L558 L563 FC 5078	5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels 12" (305 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. Gypsum board end joints fastened with screws 8" (203 mm) o.c. to additional channels 60" (1.5 m) long located 3" (76.2 mm) from end joint. Resilient channels applied at right angles to 18" (457 mm) deep parallel chord wood trusses 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type S or W screws. Glass fiber or mineral fiber batt or loose fill insulation installed directly over gypsum board. Wood trusses supporting 23/32" (18.3 mm) wood structural panels and 15/32" (11.9 mm) wood structural panels finish floor or floor topping mixture.	55	NGC 5011031
139	1 Hr.	L528 FC 5516	5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to 7/8" (22.2 mm) rigid furring channels 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. and 1-1/2" (38.1 mm) from edges. Gypsum board end joints located midway between continuous channels and fastened to additional channels 60" (1.5 m) long with screws 12" (305 mm) o.c. Rigid furring channels applied at right angles to 12" (305 mm) deep parallel chord wood trusses 24" (610 mm) o.c. with double-strand 18-gauge galvanized steel wire ties 48" (1,219 mm) o.c. Wood trusses supporting 23/32" (18.3 mm) wood structural panels.		
140	1 Hr.	L558 M550 WP 5051	5/8" (15.9 mm) High Strength Fire-Shield 60 Gypsum Board applied at right angles to resilient channels 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type S screws 8" (203 mm) o.c. Gypsum board end joints fastened with screws 8" (203 mm) o.c. to additional channels 60" (1.5 m) long located 3" (76 mm) from end joint. Resilient channels applied at right angles to 18" (457 mm) deep parallel chord wood trusses 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type S or W screws. Minimum 3-1/2" (88.9 mm) glass fiber or mineral fiber batt insulation installed directly over gypsum board. Wood trusses supporting 23/32" (18.3 mm) wood structural panels and 15/32" (11.9 mm) wood structural panel finish floor or floor topping mixture.	57	NGC 5019061
			IIC: 55		NGC 7019084
141	1 Hr.	FC 5512	Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied at right angles to parallel chord wood trusses 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type S screws 24" (610 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied at right angles to trusses with 1-7/8" (47.6 mm) Type S screws 12" (305 mm) o.c. and 1-1/2" (38.1 mm) Type G screws 12" (305 mm) o.c. placed 3" (76.2 mm) from each side of end joints. Joints staggered each layer. Trusses supporting 19/32" (15.1 mm) plywood.		
142	2 Hr.	M500 FC 5650	Base layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to 12" (305 mm) deep parallel chord wood trusses with 1-5/8" (41.3 mm) Type S screws 8" (203 mm) o.c. Resilient furring channels 12" (305 mm) o.c. applied at right angles to wood trusses through base layer with 1-7/8" (47.6 mm) Type S screws. Second layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels with 1" (25.4 mm) Type S-12 screws 8" (203 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels through second layer with 1-5/8" (41.3 mm) Type S-12 screws 8" (203 mm) o.c. Joints staggered each layer. Mineral wool or glass fiber insulation draped over gypsum board. Trusses supporting 23/32" (18.3 mm) wood structural panels and floor topping mixture.	58	NGC 5020065
			IIC: 59		NGC 7020076

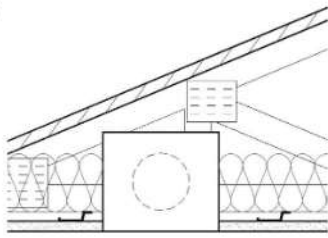


**GYPSON BOARD FLOOR/CEILING ASSEMBLIES – WOOD FRAMED – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
143	2 Hr.	L556 FC 5751	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to 18" (457 mm) deep parallel chord wood trusses 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 12" (305 mm) o.c. Second layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to trusses with 2" (50.8 mm) Type W screws 12" (305 mm) o.c. Joints staggered 24" (610 mm) from base layer. Third layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to trusses with 2-1/2" (63.6 mm) Type W screws 12" (305 mm) o.c. Joints staggered 12" (50.8 mm) from second layer. 7/8" (22.2 mm) rigid furring channels 24" (610 mm) o.c. applied at right angles to trusses over third layer with two 2-1/2" (63.6 mm) Type W screws at each truss. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to furring channels with 1-1/8" (28.6 mm) Type S screws 12" (305 mm) o.c. Trusses supporting 3/4" (19.1 mm) plywood.</p>		
144	1 Hr.	M546 FC 5079	 <p>Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels 16" (406 mm) o.c. with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. in the field and 8" (203 mm) at butt joints. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels through second layer with 1-5/8" (41.3 mm) Type S screws 8" (203 mm) o.c. and 1-1/2" (38.1 mm) Type G screws 8" (203 mm) o.c. midway between channels at butt joints. Resilient channels applied at right angles to 9-1/2" (241 mm) wood l-joists 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type S screws. Minimum 3-1/2" (88.9 mm) glass fiber or mineral fiber batt insulation installed directly over gypsum board. l-joists supporting 19/32" (15.1 mm) wood structural panels and 15/32" (11.9 mm) wood structural panels finish floor or floor topping mixture.</p> <p>IIC: 61</p>	58	NGC5019076
145	2 Hr.	L538	 <p>Base layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to 9-1/2" (241 mm) wood l-joists 19.2" (488 mm) o.c. with 1-5/8" (41.3 mm) Type S screws 8" (203 mm) o.c. Resilient channels 16" (406 mm) o.c. applied at right angles to wood joists through base layer with 1-7/8" (47.6 mm) Type S screws at each joist. Second layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels with 1" (25.4 mm) Type S-12 screws 8" (203 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels through second layer with 1-5/8" (41.3 mm) Type S-12 screws 8" (203 mm) o.c. Joints staggered minimum 16" (406 mm) from second layer. l-joists supporting 5/8" (15.9 mm) wood structural panel floor applied at right angle to joists.</p>		NGC 7019100
146	2 Hr.	L556 FC 5750	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to 9-1/2" (241 mm) wood l-joists 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type W screws 12" (305 mm) o.c. Second layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to l-joists with 2" (50.8 mm) Type W screws 12" (305 mm) o.c. Joints staggered 24" (610 mm) from base layer. Third layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to l-joists with 2-1/2" (63.6 mm) Type W screws 12" (305 mm) o.c. Joints staggered 12" (305 mm) from second layer. 7/8" (22.2 mm) rigid furring channels 24" (610 mm) o.c. applied at right angles to l-joists over third layer with two 2-1/2" (63.6 mm) Type W screws at each truss. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to furring channels with 1-1/8" (28.6 mm) Type S screws 12" (305 mm) o.c. l-joists supporting 3/4" (19.1 mm) plywood.</p>		

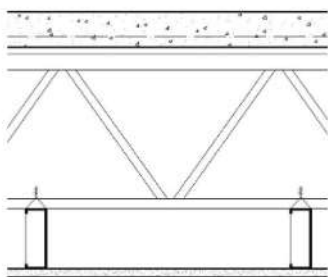
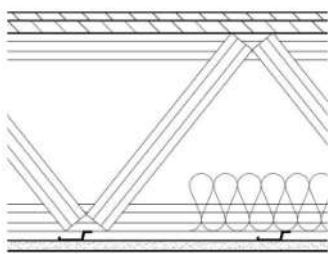
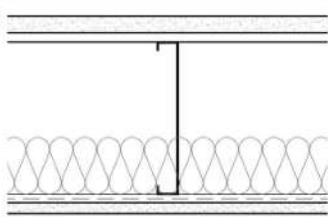
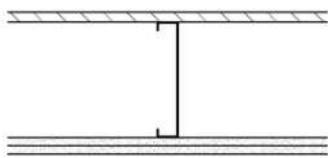
**GYPSON BOARD FLOOR/CEILING ASSEMBLIES – WOOD FRAMED – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
147	1 Hr.	P533 RC 2603	5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels 12" (305 mm) o.c. with 1-1/8" (28.6 mm) Type S screws 8" (203 mm) o.c. Resilient channels applied at right angles to bottom chord of wood trusses 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type S screws. Glass fiber insulation draped over the back of the channels. Wood trusses supporting 15/32" (11.9 mm) wood structural panels.		



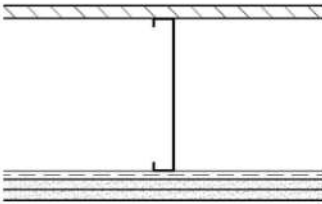
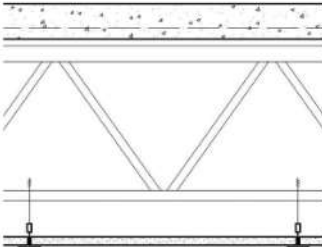
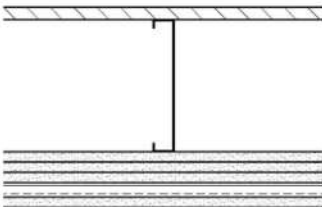
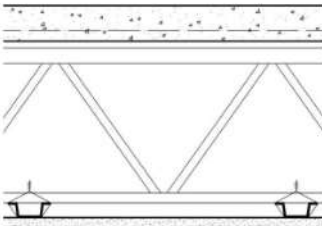
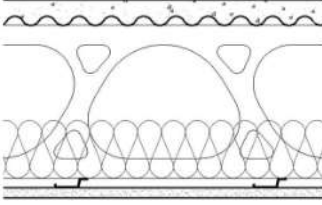
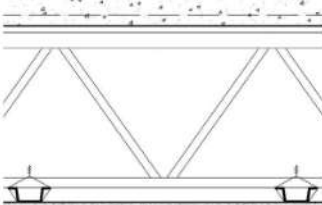
**GYPSON BOARD FLOOR/CEILING ASSEMBLIES – STEEL FRAMED**

148	1 Hr.	L524 FC 4502	Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied at right angles to 7" (178 mm) deep, 18-gauge steel joists 24" (610 mm) o.c. with 1" (25.4 mm) Type S-12 screws 8" (203 mm) o.c. at ends and 12" (305 mm) o.c. at intermediate joints. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied at right angles to joists with 1-1/2" (38.1 mm) Type G screws 8" (203 mm) o.c. at ends located between joists and 1-5/8" (41.3 mm) Type S-12 screws 12" (305 mm) o.c. at joists. Joints offset from base layer joints. Steel joists supporting 19/32" (15.1 mm) wood structural panels.		
149	1 Hr.	G560	5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels 12" (305 mm) o.c. with 1" (25.4 mm) Type S screws 1-1/2" (38.1 mm) and 4" (102 mm) from board edges and 8" (203 mm) o.c. in the field. Resilient channels fastened to 9-1/4" (235 mm) deep, steel joists 24" (610 mm) o.c. with 1/2" (12.7 mm) Type S screws. Joists supporting 9/16" (14.3 mm) steel deck and floor topping mixture.		
150	1 Hr.	L565 FC 4515	5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels 16" (406 mm) o.c. with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Gypsum board end joints fastened to additional channels 60" (1,524 mm) long with screws 12" (305 mm) o.c. located 3" (76.2 mm) from end joint. Resilient channels applied at right angles to light gauge steel trusses 48" (1,219 mm) o.c. with 1/2" (12.7 mm) Type S-12 screws. Steel trusses supporting 23/32" (18.3 mm) wood structural panels and 15/32" (11.9 mm) wood structural panel finish floor or floor topping mixture. Optional mineral wool or glass fiber insulation draped over resilient channels. Resilient channels spaced 12" (305 mm) o.c. when insulation is used.		
151	1 Hr.	FC 1105	1/2" (12.7 mm) Fire-Shield C Gypsum Board applied at right angles to 3-5/8" (92.1 mm) steel studs 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Studs fastened to steel bar joists 24" (610 mm) o.c. with wire ties 8" (203 mm) o.c. 3/8" (9.5 mm) rib lath supporting 2-1/2" (63.6 mm) concrete slab.		





**GYPSON BOARD FLOOR/CEILING ASSEMBLIES – STEEL FRAMED – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
152	1-1/2 Hr.	L577	 <p>Base layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to channels through base layer with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Edge joints offset 16" (406 mm) from base layer joints. Butt joints of face layer fastened to base layer between resilient channels with 1-1/2" (38.1 mm) Type G screws 8" (203 mm) o.c. Resilient channels 16" (406 mm) o.c. applied at right angles to 9-3/8" (238 mm) deep, 16-gauge steel joists with 1/2" (12.7 mm) Type S-12 pan-head screws 24" (610 mm) o.c. Steel joists supporting 3/4" (19.1 mm) plywood.</p>		
153	1-1/2 Hr.	G259 FC 1290	 <p>2' x 4' x 1/2" (610 mm x 1,219 mm x 12.7 mm) Gridstone Gypsum Ceiling Panels laid in fire-rated metal grid system suspended from steel joists supporting 2-1/2" (63.6 mm) concrete slab.</p>		
154	2 Hr.	L556 FC 4750	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to 8" (203 mm) deep, 18-gauge steel joists 24" (610 mm) o.c. with 1-1/4" (31.8 mm) Type S-12 screws 12" (305 mm) o.c. Second layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to joists with 2" (50.8 mm) Type S-12 screws 12" (305 mm) o.c. Joints staggered 24" (102 mm) from base layer. Third layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to joists with 2-1/2" (63.6 mm) Type S-12 screws 12" (305 mm) o.c. Joints staggered 12" (305 mm) from second layer. 7/8" (22.2 mm) rigid furring channels 24" (610 mm) o.c. applied at right angles to joists over third layer with two 2-1/2" (63.6 mm) Type S-12 screws at each truss. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to furring channels with 1-1/8" (28.6 mm) Type S screws 12" (305 mm) o.c. Steel joists supporting 3/4" (19.1 mm) plywood.</p>		
155	2 Hr.	G503	 <p>5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to rigid furring channels 12" o.c. (305 mm) with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. Furring channels fastened to or suspended from steel bar joists 24" (610 mm) o.c. Bar joists supporting 2-1/2" (63.6 mm) concrete slab.</p>		
156	2 Hr.	G563	 <p>5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels 12" (305 mm) o.c. with 1" (25.4 mm) Type S screws 8" (203 mm) o.c. Resilient channels fastened to 9-1/4" (235 mm) deep proprietary steel joists. Joists supporting steel deck and floor topping mixture.</p>		
157	2 Hr.	G514 FC 2030	 <p>1/2" (12.7 mm) Fire-Shield C Gypsum Board applied at right angles to rigid furring channels 24" (610 mm) o.c. with 1" (25.4 mm) type S screws 12" (305 mm) o.c. Furring channels fastened to or suspended from steel bar joists 24" (610 mm) o.c. with wire ties 48" (1,219 mm) o.c. Bar joists supporting 2-1/2" (63.6 mm) concrete slab.</p> <p>IIC: No carpet – 21 IIC: Carpet and pad – 67</p>	53	NGC 4075

**GYPSUM BOARD FLOOR/CEILING ASSEMBLIES – STEEL FRAMED – CONTINUED**

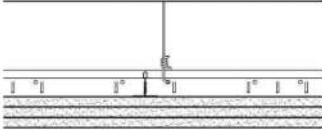
Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
158	2 Hr.	G523	1/2" (12.7 mm) Fire-Shield C Gypsum Board applied at right angles to cross tees of metal suspension system with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Ceiling grid suspended from steel bar joists 24" (610 mm) o.c. supporting 2-1/2" (63.6 mm) concrete slab.		
159	2 Hr.	D502	5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to cross tees of metal suspension system with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Ceiling grid suspended from 2-1/2" (63.6 mm) concrete slab on steel deck.		
160	2 Hr.	G222 FC 2190	2' x 2' x 1/2" (610 mm x 610 mm x 12.7 mm) Gridstone Gypsum Ceiling Panels laid in fire-rated metal grid system suspended from steel joists supporting 2-1/2" (63.6 mm) concrete slab.		
161	3 Hr.	G512 FC 3012	5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to rigid furring channels 24" (610 mm) o.c. with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Furring channels fastened to bar joists 24" (610 mm) o.c. with wire ties. Bar joists supporting 2-1/2" (63.6 mm) concrete slab.		

**GYPSUM BOARD HORIZONTAL MEMBRANES**

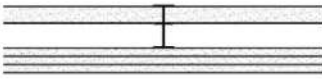
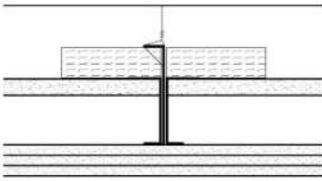
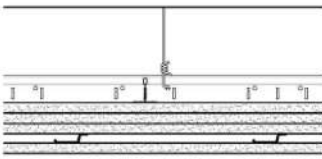
162	1 Hr.	I504 HM 7101	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to 3-5/8" (92.1 mm) steel studs 16" (406 mm) o.c. with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. Second layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to studs with 1-5/8" (41.3 mm) Type S screws 16" (406 mm) o.c. with end and edge joints staggered 16" (406 mm) from base layer joints. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to studs with 2-1/4" (57.2 mm) Type S screws 12" (305 mm) o.c. with end and edge joints staggered 16" (406 mm) from joints in second layer.		
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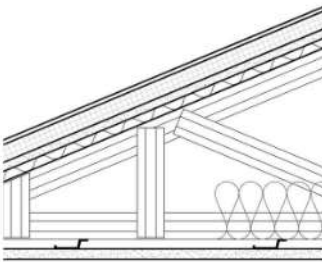
## GYPSUM BOARD HORIZONTAL MEMBRANES – CONTINUED

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
163	1 Hr.	I504	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to cross Tees of suspended ceiling grid system spaced 16" (406 mm) o.c. with 1" (25.4 mm) Type S screws 16" (406 mm) o.c. Second layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to Tees with 1-5/8" (41.3 mm) Type S screws 16" (406 mm) o.c. with end and edge joints staggered 16" (406 mm) from base layer joints. Face layer 5/8" (15.9 mm) Fire Shield Gypsum Board applied at right angles to Tees with 2-1/4" (57.2 mm) Type S screws 12" (305 mm) o.c. with end and edge joints staggered 16" (406 mm) from joints in second layer.</p>		

## HORIZONTAL SHAFTWALL MEMBRANES AND DUCT PROTECTION SYSTEMS

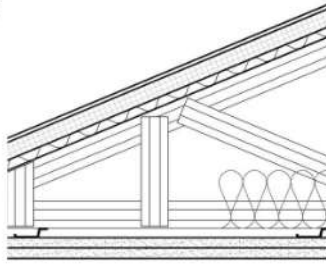
164	2 Hr.	WHI 694-0300.1	 <p>1" (25.4 mm) Shaftliner XP inserted between flanges of 2-1/2" (63.6 mm) steel I-studs 24" (610 mm) o.c. Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied parallel to studs with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Second layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied parallel to studs with 1-5/8" (41.3 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied at right angles to studs with 2-1/4" (57.2 mm) Type S screws 12" (305 mm) o.c.</p>		
165	2 Hr.	I516 HM 7201	 <p>1" (25.4 mm) Shaftliner XP or eXP Shaftliner inserted between flanges of 4" (102 mm) steel C-T studs 24" (610 mm) o.c. C-T studs supported by J-Tracks fastened to each side of 6" (152 mm) steel track 8' (2.4 m) o.c. 6" (152 mm) steel track suspended from deck with 8-gauge steel wires. 2" x 6" (50.8 mm x 152 mm) strips of mineral wool insulation draped over J-Tracks on each side of 6" (152 mm) track. Base layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to studs with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Second layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to studs with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied with long dimension parallel to studs with 2-1/4" (57.2 mm) Type S screws 12" (305 mm) o.c.</p>		
166	2 Hr.	I512 HM 7207	 <p>Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to cross Tees of suspended ceiling grid system spaced 16" (406 mm) o.c. with 1-1/4" (31.8 mm) Type S screws 12" (305 mm) o.c. Second layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to Tees with 2" (50.8 mm) Type S screws 12" (305 mm) o.c. Third layer 5/8" (15.9 mm) Fire Shield Gypsum Board applied at right angles to Tees with 2-1/2" (63.5 mm) Type S screws 12" (305 mm) o.c. Resilient channels 16" (406 mm) o.c. fastened perpendicular to cross Tees with 2-1/4" (57.2 mm) Type S screws. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to resilient channels with 1" (25.4 mm) Type S screws 12" (305 mm) o.c.</p>		

## GYPSUM BOARD ROOF/CEILING ASSEMBLIES – STEEL FRAMED

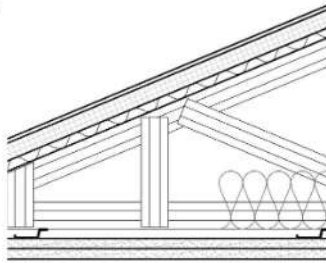
167	1 Hr.	P540 RC 2501	 <p>5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels 16" (406 mm) o.c. with 1-1/8" (28.6 mm) Type S screws 12" (305 mm) o.c. Gypsum board end joints fastened to additional channels 60" (1.5 m) long with screws 12" (305 mm) o.c. located 3" (76.2 mm) from end joint. Resilient channels fastened to steel trusses 48" (1,219 mm) o.c. with 1/2" (12.7 mm) S-12 screws. Resilient channels spaced 12" (305 mm) o.c. when insulation is used. Steel trusses supporting steel roof deck covered by 1/2" (12.7 mm) eXP Fire-Shield Sheathing. Insulation boards laid over gypsum sheathing and covered with a class A, B or C roofing system. Optional mineral wool or glass fiber insulation draped over resilient channels. Resilient channels spaced 12" (305 mm) o.c. when insulation is used.</p>		
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**GYPSUM BOARD ROOF/CEILING ASSEMBLIES – STEEL FRAMED – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
168	1 Hr.	P541	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied at right angles to resilient channels 24" (610 mm) o.c. with 1-1/8" (28.6 mm) Type S screws 8" (203 mm) o.c. at ends and 12" (305 mm) o.c. at intermediate channels. Gypsum board end joints fastened to additional channels extending 3" (76.2 mm) beyond ends of end joints. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied with long dimension perpendicular to channels with 1-3/4" (44.5 mm) Type S screws 8" (203 mm) o.c. Resilient channels fastened to steel trusses 48" (1,219 mm) o.c. with 1/2" (12.7 mm) Type S-12 screws. Steel trusses supporting steel roof deck and covered with a class A, B or C roofing system. Optional mineral wool or glass fiber insulation draped over resilient channels. Resilient channels spaced 12" (305 mm) o.c. when insulation is used.		

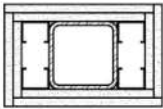


169	2 Hr.	P543 FC 2752	Base layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to resilient channels 16" (406 mm) o.c. with 1-1/8" (28.6 mm) Type S screws 12" (305 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield C Gypsum Board applied at right angles to channels through base layer with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. Resilient channels fastened to steel trusses 48" (1,219 mm) o.c. with 1/2" (12.7 mm) Type S-12 screws. Resilient channels spaced 12" (305 mm) o.c. when insulation is used. Steel trusses supporting steel roof deck covered by 1/2" (12.7 mm) eXP Sheathing or 1/2" (12.7 mm) DEXcell Roof Board. Insulation boards laid over gypsum sheathing and covered with a class A, B or C roofing system.		
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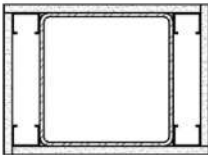


**GYPSUM BOARD FIREPROOFING – STEEL COLUMNS**

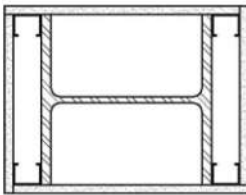
170	1 Hr.	X528 CM 1452	Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to 1-5/8" (41.3 mm) steel studs at each corner of TS 4x4x0.188 steel tube column with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically with 1-3/4" (44.5 mm) Type S screws 12" (305 mm) o.c.		
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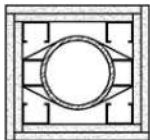
171	1 Hr.	X528 CM 1851	5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to 1-5/8" (41.3 mm) steel studs at each corner of TS 8x8x.250 steel tube column with 1" (25.4 mm) Type S screws 24" (610 mm) o.c.		
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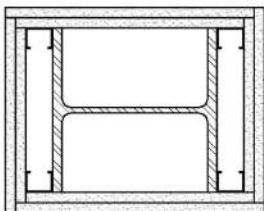
172	1 Hr.	X528 CM 1001	1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to 1-5/8" (41.3 mm) steel studs at each corner of W10x49 steel column with 1" (25.4 mm) Type S screws 24" (610 mm) o.c.		
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173	1-1/2 Hr.	X531	Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to 1-5/8" (41.3 mm) steel studs at each corner of 4-1/2" (114 mm) OD steel pipe column with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c.		
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174	2 Hr.	X528 CM 2017	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to 1-5/8" (41.3 mm) steel studs at each corner of W10x49 steel column with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically with 1-3/4" (44.5 mm) Type S screws 12" (305 mm) o.c.		
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**GYPSUM BOARD FIREPROOFING – STEEL COLUMNS – CONTINUED**

Item No.	Fire Rating	UL/GA Design	Description	STC	Test No.
175	2 Hr.	X520 CM 2110	1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to 1-5/8" (41.3 mm) steel studs at each corner of W14x228 steel column with 1" (25.4 mm) Type S screws 12" (305 mm) o.c.		
176	3 Hr.	X510 CM 3120	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to 1-5/8" (41.3 mm) steel studs at each corner of W10x49 steel column with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Second layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c. and wire tied with two strands 18-gauge wire 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with 2-1/4" (57.2 mm) Type S screws 12" (305 mm) o.c.		
177	3 Hr.	X513 CM 3130	Base layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to 1-5/8" (41.3 mm) steel studs at each corner of W14x228 steel column with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Face layer 1/2" (12.7 mm) Fire-Shield C Gypsum Board applied vertically to studs with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c.		
178	4 Hr.	X501	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically to 1-5/8" (41.3 mm) steel studs at each corner of W10x49 steel column with 1" (25.4 mm) Type S screws 24" (610 mm) o.c. Second layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically with 1-5/8" (41.3 mm) Type S screws 24" (610 mm) o.c. 2" x 2" (50.8 mm x 50.8 mm) 25-gauge steel angles applied to corners with 1-5/8" (41.3 mm) Type S screws 24" (610 mm) o.c. Third layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically and fastened to angles with 1" (25.4 mm) Type S screws 12" (305 mm) o.c. and wire tied with two strands 18-gauge wire 24" (610 mm) o.c. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied vertically and fastened to angles with 1-5/8" (41.3 mm) Type S screws 12" (305 mm) o.c.		
<b>GYPSUM BOARD FIREPROOFING – STEEL BEAMS</b>					
179	2 Hr.	N501 BM 2120	Base layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied with 1-1/4" (31.8 mm) Type S screws 16" (406 mm) o.c. to steel frames 24" (610 mm) o.c. fabricated from 25-gauge, 1" (25.4 mm) x 2" (50.8 mm) steel angles. Face layer 5/8" (15.9 mm) Fire-Shield Gypsum Board applied to frames with 1-3/4" (44.5 mm) Type S screws 8" (203 mm) o.c.		